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09/210,545	12/14/1998	KATSUHISA OGAWA	35.C13212	5262

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EXAMINER

GENCO, BRIAN C

ART UNIT	PAPER NUMBER
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2615

DATE MAILED: 10/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/210,545

Applicant(s)

OGAWA ET AL.

Examiner

Brian C Genco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6, 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

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**DETAILED ACTION*****Examiner's Notes***

Examiner requests that figures 1-3 be labeled as prior art since, in regards to figures 1 and 2A-C, the Bayer pattern for color filters is very well known, as well as color interpolation for an image sensor using the Bayer pattern. In regards to figure 3 applicant discloses in the specifications, "Fig. 3 is a block diagram of a conventional single-plate color image pickup device (page 2, lines 25-26)."

Examiner notes that in figure 2A the "R" in the bottom right corner of the figure is not circled, whereas according to the specifications it should be circled since it is "an original pixel obtained from a photoelectric conversion element (page 2, lines 20-21)."

***Claim Objections***

Claims 4-6 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

In regards to claims 4-6 applicant claims that the horizontal selection means be disposed as part of the output means wherein the claims that claims 4-6 depend upon, namely claims 1-3, claim the horizontal selection means. Therefore since the applicant is simply moving the boundary of what is called the output means that claims 4-6 do not further limit claims 1-3 respectively. On the contrary they broaden the output means to encompass more than in claims 1-3.

***Claim Rejections - 35 USC § 112***

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 7-9 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In regards to claims 7-9 the applicant never discloses in the specification anything about a "time delay" as claimed in claims 7-9:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-9, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In regards to claims 1-9, and 16 applicant claims "vertical direction selection means for selecting in a vertical direction an arbitrary basic block having at least two of said plurality of photodetectors" as claimed in claim 1 or some similar variation thereof as well as "horizontal direction selection means for selecting the arbitrary basic block in a horizontal direction." As broadly as claimed these claim limitations can be interpreted in two different ways. The first being a vertical and horizontal selection means for defining the size of the basic block in a vertical and horizontal directions wherein the smallest size that one can select in the vertical direction is two pixels. Therefore by this interpretation one could select the basic block to have sizes ranging from two vertical pixels to the entire pixel array. The second interpretation being

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means for selecting a predefined basic block array, typically two pixels by two pixels as disclosed by applicant, in a vertical direction and a horizontal direction in order to particularly select a single basic block from within the entire pixel array. For the purpose of examination the examiner is using the second interpretation. Note that the first interpretation is not enabled by the specification.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, and 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by (USPN 4,322,752 to Bixby).

In regards to claim 1 Bixby discloses, "In accordance with the invention, the sensor 40 is read as though divided into blocks. As depicted in FIG. 4 the sensor 40 is formatted into six blocks ... of 32 photosite rows each. To begin readout, a block select electronic circuit in the form of a shift register 42 enables all 32 rows of block 1 for readout. Column address electronics, in the form of a column shift register 44, then sequentially addresses the photosite columns of the entire area image sensor 40 (column 4, lines 28-36, Bixby)," or in other words vertical blocks are selected in accordance with the vertical shift register 42, or "vertical direction selection means," and the rows in each of the vertical blocks are read out in parallel in accordance to the column shift register, or "horizontal direction selection means." Note column 6, lines 37-51 and figures 9a and 9b. Bixby further discloses "a color area image sensor (column 8, line 1, Bixby)" or "a plurality of photodetectors each having a color sensor array."

In regards to claims 2 and 3 Bixby discloses, "FIG. 8 shows a color area image sensor of the type disclosed in U.S. Pat. No. 4,117,510 wherein red, green, and blue filters overlie

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respective rows of photosites. According to the readout method disclosed in U.S. Pat. No. 4,117,510, the red, green, and blue signals from photosite rows 1, 2, and 3 are read out simultaneously and combined to give one effective line of resolution of a scene image on the sensor (column 6, lines 1-8, Bixby),” wherein a basic block would consist of three rows of red, green, and blue color signals which are “repeated patterns of the color filter array” which was “obtained by equally dividing a basic pattern of repeated patterns of the color filter array.”

In regards to claims 4-6 Bixby discloses, “To begin readout, a block select electronic circuit in the form of a shift register 42 enables all 32 rows of block 1 for readout. Column address electronics, in the form of a column shift register 44, then sequentially addresses the photosite columns of the entire area image sensor 40 (column 4, lines 25-36, Bixby),” wherein the column shift register 44, or “means for selecting the basic block in the horizontal direction to output the outputs from said photodetectors in the basic block,” is part of the output means.

In regards to claims 10-12 see examiners rejections on claims 1-3. Note Bixby discloses “a color area image sensor of a type ... wherein red, green, and blue filters overlie respective rows of photosites (column 6, lines 1-3, Bixby).”

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,322,752 to Bixby).

In regards to claims 13-15 see examiners rejections on claims 10-12. Note that it is very well known and established in the art to use either primary color filters as disclosed by Bixby or complementary color filters as claimed in claims 13-15 in image devices therefore it would have been obvious to one of ordinary skill in the art to replace the primary color filter array in Bixby's invention with a complementary color filter array.

Claims 7-9, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,322,752 to Bixby) in view of (USPN 5,771,031 to Kinoshita et al).

In regards to claims 7-9 see examiners notes on the rejection of claims 1-3 respectively. Note that Bixby does not disclose what happens to the image signals after they are read out of the image sensor and therefore does not disclose any memory system in combination with the invention. Kinoshita discloses "a block drive technique by which each horizontal pixel array is divided into N pixel blocks (where N is an integer of two or more). According to this drive technique, the signal line driving circuit is constituted by N driver sections which respectively drive groups of signal lines for the pixel blocks, and first and second line memories are additionally provided each of which stores pixel data items for one horizontal pixel array to be distributed to the driver sections (column 1, lines 38-46, Kinoshita)," as well as, "In this case, since the driver sections corresponding to the pixel blocks are operable in parallel to process the pixel data items distributed thereto the processing speed of each driver section can be reduced to about 1/N of the speed required in the case where the number of pixel data items corresponding to that of all the signal lines are sequentially processed (column 1, lines 51-57, Kinoshita)." Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to use Kinoshita's block memory for "storage means" in order to speed up processing of the information in later components which are well know and commonly used in processing image information. Note that a time delay is an implied part of the process of transferring the information to the storage means. In other words the transfer of information is not instantaneous and there is always going to be a time delay of some sort when transferring the information to the storage means. Further note that Bixby does teach that the "vertical direction selection means selects said photodetectors in the selected basic block in units of lines," namely 32 lines at a time, wherein the claimed time delay is also an implied part of the process of selecting the



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blocks. In other words when scanning in the vertical direction the transition from one block to the next is not instantaneous and therefore there is always going to be some time delay.

In regards to claim 16 see examiners notes on the rejections of claims 1 and 7-9. Note that Bixby discloses "the red, green and blue signals from photosite rows 1, 2, and 3 are read out simultaneously and combined," or interpolated, "to give one effective line of resolution (column 6, lines 5-7, Bixby)."

Claims 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over (USPN 4,322,752 to Bixby) in view of (USPN 5,771,031 to Kinoshita et al) in further view of (USPN 6,230,975 to Colley et al).

In regards to claims 17 and 19 Colley et al, herein Colley, discloses, "a single-chip CMOS optical reader may provide lower costs of manufacture ... Further, additional necessary support functions may be integrated on the same CMOS chip, reducing their cost as well as lowering the overall system cost. Another advantage is smaller size... Another advantage of the device is higher expected reliability... Finally, such a device could achieve substantially lower power consumption (column 15, lines 23-39, Colley)," wherein "said block storage means, said interpolation means, and said signal processing means," are all support functions for the image sensor. Also note figure 1 and column 3, lines 23-27.

In regards to claim 18 Bixby does not disclose any processing of any sort after readout. Colley discloses, "In FIG. 1 is shown a optical reader chip 100 comprising an imaging array 102 connected to a gain/offset block 103 ... The gain/offset block 103 outputs a video signal 112 that is optionally connected to an analog-to-digital (A/D) converter 105 for conversion from analog

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to digital format. The video signal ... is then passed to a low pass filter 106. The low pass filter 106 is connected to an edge detector 107 (column 1, lines 31-42, Colley).”

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

(USPN 4,660,096 to Arlan et al)

(USPN 4,785,353 to Seim)

(USPN 5,047,844 to Ikeda et al)

(USPN 5,285,286 to Kannegundla)

(USPN 5,459,520 to Sasaki)

(USPN 5,550,936 to Someya et al)

(USPN 5,680,335 to Ikeyama et al)

(USPN 5,867,627 to Nakazato et al)

(USPN 5,875,040 to Matraszek et al)

(USPN 5,920,343 to Watanabe et al)

(USPN 5,943,091 to Wu et al)

(USPN 5,986,699 to Nishihara)

(USPN 6,181,375 to Mitsui et al)

(USPN 6,197,503 to Vo-Dinh et al)

(USPN 6,205,259 to Komiya et al)

(USPN 6,295,087 to Nohda)

(USPN 4,117,510 to Ohta et al)

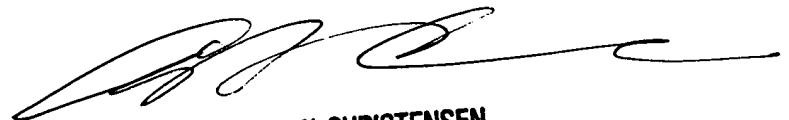
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian C. Genco who can be reached at 703-305-7881. The examiner can normally be reached on Monday thru Friday 8:00am to 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Christensen can be reached on 703-308-9644. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the technology center 2600 customer service office whose telephone number is 703-306-0377.

Brian C Genco  
Examiner  
Art Unit 2615

September 25, 2002



**ANDREW CHRISTENSEN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600**